

DEPARTMENT OF HEALTH SERVICES

VECTOR-BORNE DISEASE SECTION

601 NORTH 7th STREET, MS 486

P. O. BOX 942732

SACRAMENTO, CA 94234-7320

(916) 324-3738

(916) 445-5947 FAX



May 23, 2000

TO: Local Health Officers, Directors of Environmental Health, Vector Control Agencies and others interested in plague surveillance and control.

FROM: Vector-Borne Disease Section (VBDS)

SUBJECT: CALIFORNIA PLAGUE REPORT, 1999

Enclosed for your information is a copy of CALIFORNIA PLAGUE RPORT, 1999. Please contact your local VBDS District Office, or the Sacramento headquarters at (916) 324-3738, if you have any questions.

Sincerely,

Vicki Kramer, Ph.D., Chief
Vector-Borne Disease Section

California Plague Surveillance and Control Annual Report 1999

Summary: No human plague cases were identified in California in 1999. The California Department of Health Services cooperative plague surveillance program identified evidence of plague in non-human animals in 22 of 35 counties sampled. Serological sampling of wild carnivores detected evidence of enzootic plague activity in several endemic regions of the state. Epizootic plague was observed among wild rodents in five major recreational mountainous areas. Animals which tested positive for plague in 1999 were 58 coyotes, 11 bears, 3 bobcats, 4 mountain lions, 1 raccoon, 5 feral pigs, 7 domestic cats, 10 California ground squirrels, 7 chipmunks (two species), 6 deer mice, 1 wood rat, 1 meadow mouse, and 3 pools of fleas from chipmunks.

This report presents data collected through the California Department of Health Services (DHS) Cooperative Plague Surveillance Program. In cooperation with local, state, and federal agencies, the DHS collects and collates information on suspect and confirmed plague activity among humans, domestic pets, and wild animals throughout California. This report summarizes plague activity in California for 1999.

Human cases

No cases of plague were identified in human residents of California.

Domestic pets

Twenty-three pets -- 5 dogs and 18 cats (3 feral) -- were tested for plague; seven cats had laboratory evidence of plague. The Los Angeles County Public Health Department Laboratory detected serologic evidence of plague in four cats from the Antelope Valley. *Yersinia pestis* was cultured from specimens obtained from three cats from Chilcoot (Plumas County), Frazier Park (Kern County), and Truckee (Nevada County). The first two cats were treated and recovered. Information on plague exposure risk and prevention was provided to the pet-owners and the veterinary staff in each case. Secondary transmission of plague to pet-owners, veterinary staff, or other domestic pets was not documented in any of these cases. Biologists of the DHS Vector-Borne Disease Section (VBDS) found evidence of plague among 19 of 28 wild carnivores sampled in the Sierra Valley southwest of Chilcoot. No evidence of epizootic plague was detected near the domestic residences of the Plumas or Nevada County cases. Following identification of each case of feline plague, the local health agency issued a press release alerting the public to the danger of plague from infected domestic cats.

Wild animals

Seropositive wild carnivores were identified in the Lake Tahoe region of the Sierra Nevada Mountains, on the Modoc Plateau, in the inter-mountain valleys of the Southern Cascades, and in the Coast Ranges of Northwestern California. An active plague epizootic among ground squirrels and chipmunks was detected in a campground in Placer County in late October 1998 and in Sierra County at Stampede Reservoir in August 1999. *Yersinia pestis* was isolated from a ground squirrel (*Spermophilus*

lateralis) at the site in Placer County and from two chipmunks (*Tamias amoenus*) and three pools of fleas collected from chipmunks trapped in a campground at Stampede Reservoir. An environmental risk assessment by the VBDS determined that the risk of transmission to the public at these sites was high. In response, staff of the VBDS, in cooperation with local health agencies, the U.S. Forest Service, campground concessionaires, and the Washoe County (NV) Vector Control Program, applied Diazinon 2% insecticide dust for flea control at both sites. Both recreation sites were reopened to the public following completion and verification of plague control. Seropositivity was detected in 12 of 26 wild carnivores sampled in the region north of Stampede Reservoir, further indicating plague activity in this region. VBDS notified local health, agriculture, and recreation agencies in the affected counties, and plague warning posters were issued to all agencies for posting recreational sites throughout the region to provide preventive information to the public.

In central California, serological evidence of plague was identified in wild carnivores from Kern, Tulare, Mariposa, and Tuolumne counties in mountainous regions, and in the interior of Monterey County on the central coast. One seropositive meadow vole (*Microtus californicus*) was detected on San Bruno Mountain in coastal San Mateo County. Eight of 34 (23%) black bears sampled by the U.S. National Park Service in Yosemite National Park tested seropositive. Following detection of seropositive rodents at a campground in the Inyo National Forest, west of Bishop, Inyo County, the Inyo County Vector Control Program and VBDS implemented plague control measures by dusting of burrows with Diazinon 2% insecticide.

In southern California, seropositive wild carnivores were identified in Santa Barbara, Los Angeles, and San Bernardino Counties. Plague surveillance by local vector control agencies, environmental health programs, and VBDS detected plague activity among California ground squirrels and other rodents in Los Angeles and Ventura counties. In consultation with the VBDS, local agencies implemented flea control of rodent burrows in the Angeles and San Bernardino National Forests in Riverside and Los Angeles Counties.

Compiled by Charles Smith, Al Hom, and Mac Thompson

Table 1. Plague-positive mammals in California, 1999.

County

LOCATION	HOST	SPECIMEN	RESULT	DATE
Alpine				
Hwy 88, 4.5W Centerville	Coyote	Nobuto	1:256	10/15/99
Nevada stateline, SW of Minden	Coyote	Nobuto	1:64	11/17/99
El Dorado				
China Hill Road off Hwy 49	Coyote	Nobuto	1:128	05/21/99
Dunlop, So. Lake Tahoe	Coyote	Nobuto	1:256	05/24/99
Meyers, 1S	Coyote	Nobuto	1:1024	06/08/99
Meyers, 1S	Coyote	Nobuto	1:16384	06/08/99
Pilot Hill, 5W	Coyote	Nobuto	1:128	05/24/99
Inyo				
Inyo NF, Four Jeffrey CG	CA G Sq	Nobuto	1:1024	05/05/99
Inyo NF, Four Jeffrey CG	Chipmunk	Nobuto	1:256	05/05/99
Kern				
Lebec, 3E	Bobcat	Nobuto	1:1024	12/13/99
Lebec, 4E	Mountain Lion	Nobuto	1:256	01/26/99
Pine Mountain Club, resident	Domestic Cat	Node aspirate	POS	06/16/99
Los Angeles				
Angeles NF, Switzer Picnic Area*	CA G Sq	Nobuto	1:1024	07/13/99
Angeles NF, Switzer Picnic Area*	CA G Sq	Nobuto	1:256	07/13/99
Angeles NF, Switzer Picnic Area*	CA G Sq	Nobuto	1:512	07/13/99
Angeles NF, Table Mts. CG*	CA G Sq	Nobuto	1:256	09/15/99
Claremont	Black Bear	Nobuto	1:4096	06/25/99
Eaton Canyon Natural Area*	CA G Sq	Nobuto	1:32	09/22/99
Lancaster Animal Shelter*	Feral Cat	Serum	1:16	09/09/99
Lancaster, resident*	Domestic Cat	Serum	1:256	10/25/99
Lancaster, resident*	Feral Cat	Serum	1:64	11/02/99
Palmdale, resident*	Feral Cat	Serum	1:32	10/19/99
Mariposa				
Yosemite NP	Black Bear	Nobuto	1:256	09/08/99
Yosemite NP, Upper Pines CG	Black Bear	Nobuto	1:256	09/07/99
Yosemite NP, Valley CG	Black Bear	Nobuto	1:128	08/17/99
Yosemite NP, Valley CG	Black Bear	Nobuto	1:128	11/01/99
Yosemite NP, Valley CG	Black Bear	Nobuto	1:64	08/22/99
Yosemite NP, Wawona	Black Bear	Nobuto	1:128	10/03/99
Yosemite NP, Yosemite Valley	Black Bear	Nobuto	1:1024	11/29/99
Mendocino				
Philo, 3E	Mountain Lion	Nobuto	1:512	04/10/99
Spy Rock Road	Bobcat	Nobuto	1:32	02/02/99
Spy Rock Road	Coyote	Nobuto	1:64	05/07/99
Modoc				
Alturas, 12E	Mountain Lion	Nobuto	1:1024	05/14/99
Alturas, 12E	Raccoon	Nobuto	1:2048	06/24/99
Alturas, 1N	Coyote	Nobuto	1:256	06/26/99
Cedarville, 2E	Coyote	Nobuto	1:512	03/15/99
Eagleville	Coyote	Nobuto	1:128	07/13/99
Eagleville, 10S	Coyote	Nobuto	1:512	03/09/99

Table 1. Plague-positive mammals in California, 1999, continued.

County

LOCATION	HOST	SPECIMEN	RESULT	DATE
Eagleville, 12E	Coyote	Nobuto	1:128	06/07/99
Eagleville, 12S	Coyote	Nobuto	1:512	06/17/99
Eagleville, 3E	Coyote	Nobuto	1:256	06/16/99
Lake City	Coyote	Nobuto	1:512	07/06/99

Monterey

King City, 5W	Coyote	Nobuto	1:128	10/28/99
San Lucas, 18E	Coyote	Nobuto	1:128	11/09/99
San Lucas, 18E	Coyote	Nobuto	1:256	11/09/99

Nevada

Penn Valley, 3N	Mountain Lion	Nobuto	1:256	09/17/99
Stampede/Truckee, 10NE	Coyote	Nobuto	1:1024	07/09/99
Truckee, 8N	Coyote	Nobuto	1:512	08/04/99
Truckee, resident	Domestic Cat	Node aspirate	POS	08/25/99

Plumas

Beckwourth, 1N	Coyote	Nobuto	1:1024	04/08/99
Beckwourth, 2N	Coyote	Nobuto	1:1024	04/07/99
Beckwourth, 4E	Coyote	Nobuto	1:2048	04/05/99
Beckwourth, 4E	Coyote	Nobuto	1:64	04/05/99
Beckwourth, 5S	Coyote	Nobuto	1:1024	05/13/99
Beckwourth, 8N	Coyote	Nobuto	1:512	05/11/99
Beckwourth, 8N	Coyote	Nobuto	1:512	05/18/99
Beckwourth, 8N	Coyote	Nobuto	1:512	05/18/99
Beckwourth, 8NW	Coyote	Nobuto	1:512	05/04/99
Chilcoot, 3S	Coyote	Nobuto	1:1024	05/21/99
Chilcoot, resident	Domestic Cat	Node aspirate	POS	06/11/99
Quincy, 3S	Coyote	Nobuto	1:512	05/26/99
Vinton, 1N	Coyote	Nobuto	1:256	05/19/99
Vinton, 1S	Coyote	Nobuto	1:512	03/30/99
Vinton, 2N	Coyote	Nobuto	1:128	07/26/99
Vinton, 2N	Coyote	Nobuto	1:256	05/17/99
Vinton, 2N	Coyote	Nobuto	1:256	07/26/99
Vinton, 2S	Coyote	Nobuto	1:512	05/28/99
Vinton, 2S	Coyote	Nobuto	1:512	05/29/99
Vinton, 3S	Coyote	Nobuto	1:1024	03/29/99

Riverside

Mt San Jacinto SP, Stone Creek CG	CA G Sq	Nobuto	1:1024	06/01/99
Mt San Jacinto SP, Stone Creek CG	CA G Sq	Nobuto	1:2048	06/01/99
Mt San Jacinto SP, Stone Creek CG	CA G Sq	Nobuto	1:512	06/01/99
San Bernardino NF, Marion Mountain CG	Chipmunk	Nobuto	1:256	07/07/99

San Bernardino

Green Valley Lake	Coyote	Nobuto	1:64	08/17/99
Green Valley Lake	Coyote	Nobuto	1:64	08/18/99
San Antonio Heights	Coyote	Nobuto	1:128	08/25/99

San Luis Obispo

Atascadero, resident	CA G Sq	Nobuto	1:256	10/06/99
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San Mateo

San Bruno Mountain COP & SP	Meadow Vole, MC	Nobuto	1:512	03/16/99
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Table 1. Plague-positive mammals in California, 1999, continued.

County

LOCATION	HOST	SPECIMEN	RESULT	DATE
<i>Santa Barbara</i>				
DOD, Vandenberg AFB	Feral Pig	Nobuto	1:256	08/14/99
<i>Sierra</i>				
Calpine, 2N	Coyote	Nobuto	1:1024	04/02/99
Loyalton, 2N	Coyote	Nobuto	1:256	07/26/99
Loyalton, 2S	Coyote	Nobuto	1:1024	04/02/99
Sierraville, 10N	Coyote	Nobuto	1:1024	05/02/99
Sierraville, 10N	Coyote	Nobuto	1:1024	05/02/99
Sierraville, 10N	Coyote	Nobuto	1:1024	05/02/99
Sierraville, 10N	Coyote	Nobuto	1:512	05/02/99
Sierraville, 2N	Coyote	Nobuto	1:512	05/17/99
Sierraville, 2N	Coyote	Nobuto	1:512	05/17/99
Sierraville, 4S	Coyote	Nobuto	1:256	07/26/99
Stampede Reservoir	Coyote	Nobuto	1:512	05/24/99
Stampede Reservoir	Coyote	Nobuto	1:512	05/24/99
Tahoe NF, Logger CG	Chipmunk, YP	Carcass	POS	08/21/99
Tahoe NF, Logger CG	Chipmunk, YP	Carcass	POS	09/09/99
Tahoe NF, Logger CG	Chipmunk, YP	Fleas	POS	09/01/99
Tahoe NF, Logger CG	Chipmunk, YP	Fleas	POS	09/01/99
Tahoe NF, Logger CG	Chipmunk, YP	Fleas	POS	09/01/99
<i>Siskiyou</i>				
Etna	Feral Pig	Nobuto	1:128	06/13/99
Etna	Feral Pig	Nobuto	1:32	06/13/99
Greenview, 2W	Black Bear	Nobuto	1:32	05/20/99
Greenview, 5W	Bobcat	Nobuto	1:128	05/22/99
Macdoel, 20E	Coyote	Nobuto	1:512	06/17/99
Macdoel, 25E	Coyote	Nobuto	1:32	03/30/99
<i>Sonoma</i>				
Healdsburg	Feral Pig	Nobuto	1:32	05/19/99
<i>Tulare</i>				
Johnsondale, 2N	Black Bear	Nobuto	1:2048	07/31/99
<i>Tuolumne</i>				
Jamestown, 12W	Feral Pig	Nobuto	1:128	06/29/99
Sonora, 17W	Coyote	Nobuto	1:128	04/12/99
Yosemite NP, Tuolumne Meadows	Black Bear	Nobuto	1:64	06/30/99
<i>Ventura</i>				
Los Padres NF, Chuchupate CG	Chipmunk, M	Nobuto	1:128	09/16/99
Los Padres NF, Chuchupate CG	Chipmunk, M	Nobuto	1:2048	04/28/99
Los Padres NF, Chuchupate CG	Chipmunk, M	Nobuto	1:2048	05/25/99
Los Padres NF, Chuchupate CG	Deer Mouse	Nobuto	1:1024	07/22/99
Los Padres NF, Chuchupate CG	Deer Mouse	Nobuto	1:2048	05/25/99
Los Padres NF, Chuchupate CG	Deer Mouse	Nobuto	1:2048	05/25/99
Los Padres NF, Chuchupate CG	Deer Mouse	Nobuto	1:512	05/25/99
Los Padres NF, Chuchupate CG	Deer Mouse	Nobuto	1:512	05/25/99
Los Padres NF, Chuchupate CG	Deer Mouse	Nobuto	1:512	05/25/99
Los Padres NF, Chuchupate CG	Woodrat, DF	Nobuto	1:4096	07/22/99

Total positive specimens = 117

Abbreviations used in Table 1:

Host:	CA G Squirrel, California ground squirrel GM G Squirrel, Golden-mantled ground squirrel.
Chipmunks:	Chipmunk LP, Lodgepole chipmunk Chipmunk M, Merriam's Chipmunk Chipmunk YP, Yellow-pine chipmunk.
Location:	NF, National Forest CG, Camp Ground COP, County Park SP, State Park
Plague Positives:	POS, positive by bacteria culture 1:n, positive antibody titer by passive or indirect hemmagglutination test.

Figure 2. Evidence of plague in fleas, domestic pets, and wild mammals in California, 1999.

